

Structural Goals



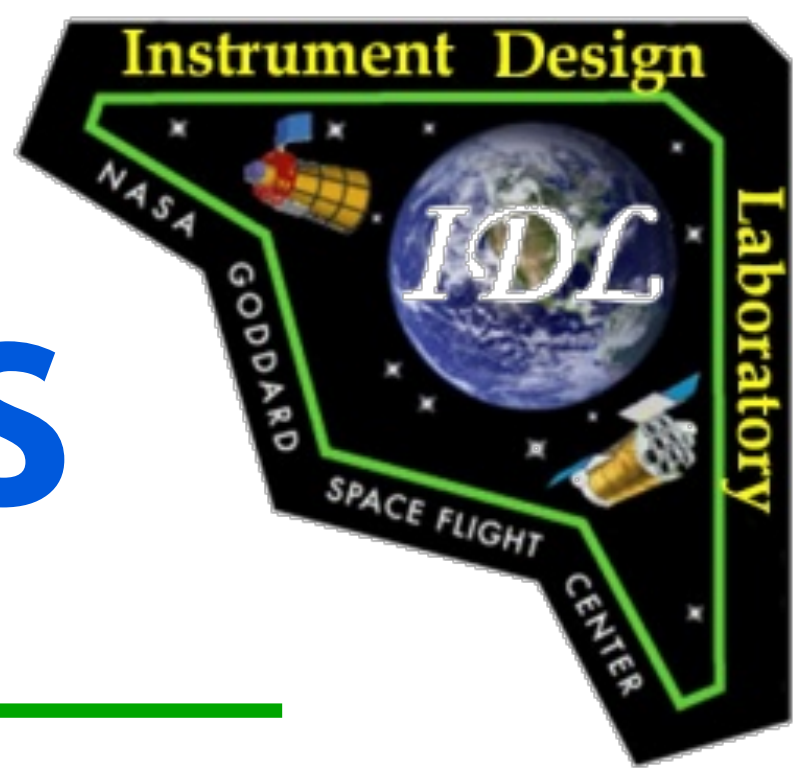
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- The following structural stiffness and strength goals for the launch configuration are recommended for OCE2 and encompass a generic spacecraft and launch vehicle
 - Fundamental Frequency for launch > 35 Hz
 - Based on frequency guidelines associated with component mass of 301 Kg
 - Structural Load Limits
 - 11.9 g in all axes independently
 - Conservative level for a payload 301 Kg using generic mass acceleration curve
- Required Factors of Safety for Analyses
 - 1.25 on metallic material yield
 - 1.4 on metallic material ultimate
 - 3.0 for glass
 - Values taken from GEVS



Structural Analysis Recommendations

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- Since the spacecraft for OCE and launch vehicle have not yet been defined, recommend using the generic stiffness goals and structural loads defined on the Structural Goals page
- The design will likely need significant optimization, particularly the cradle assembly and trunnion connection to instrument housing
 - Detector array structure stiffness should be >50 to reduce risk of coupling to overall instrument modes
- On-orbit configuration will also need to be assessed for stiffness and stability due to thermal loads and s/c and self-induced disturbances.
 - Particular attention should be paid to potential coupling between on-orbit structure modes and the momentum compensator 24.6 Hz rotation rate.

